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As the information revolution has introduced an increasing number of methods and mechanisms for accessing and manipulating data, many industries, particularly the banking industry, have attempted to incorporate these methods and mechanisms to improve the services provided to their users. As a result, the world has witnessed the appearance of automated teller machines (ATMs) on many street corners, telephone access to account information and limited access to banking services via home computer. As the capabilities of modern computers expand together with increasingly sophisticated forms of data transmission, such as high speed modems, satellite links and cellular communication, the demand for more sophisticated remote banking services has also increased. Similarly, as international boundaries have become more permeable to the flow of people and information, there is rising demand for remote banking services to cross international boundaries as well. Thus, it would be desirable to provide a range of services previously available only at traditional points of service, e.g., bank offices, branches, ATMs, to non-traditional locations, e.g., personal computers (PCs), personal data assistants (PDAs), telephones with displays (screen phones), etc., and further to make access to these services available on an international basis. In order to provide a truly international banking system that can be accessed at both traditional and non-traditional points of service, three hurdles must be overcome. First, secure and reliable communication enabling systems must be provided. For instance, computer "hackers" regularly compromise even the most sophisticated computer networks. Thus it would be desirable for a remote banking system to include security measures, such as security codes and encryption. This is especially true where the system is intended to be accessed over unsecured telephone lines.

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Also, a system for banking from remote terminals may require data transmissions over standard telephone lines. These data transmissions -- in which machines are talking to machines -- optimally require a great deal of information to be transmitted. However, standard telephone lines have a limited bandwidth, which limits the amount of data that can be transmitted in a given period of time. As a result, the time required to perform a given transaction can be quite long. Thus, it is desirable to transmit the data over a very short period of time in order to reduce session time and therefore time commitment by the user. Also, the expenses of the telephone call and the system time committed to the transaction are minimized. Accordingly, there is a need to compress the data so as to minimize the time required for data transmission.

Furthermore, telephone lines can be quite "noisy", that is, signals from other lines, equipment errors or electromagnetic interference can introduce anomalous signals into the machine-to-machine data transmissions. If the noise is sufficiently disturbing, the data transmitted may be compromised. In such instances the remote terminal may not detect that an error has occurred. Instead, the home terminal may simply display the incorrect transmission which may well be an unintelligible "garble" of characters appearing on the terminal display. This results in wasted time and may negatively impact the user's confidence in the system, which is particularly important in view of the sensitive nature of the transaction. Thus, it would be desirable to provide a system which can detect that an error in data transmission has occurred, identify the portion of the data transmission which is incorrect, and re-transmit the correct data.

Second, the idiosyncrasies of each individual system user must be accommodated. For example, many users move or travel frequently. Thus, it would be desirable to provide each user with a consistent interface format so that each change in location will not require the user to relearn the banking system under a different interface format. Furthermore, banking transactions may take place in many different languages. Because a financial institution, such as a bank, may have locations in a number of different countries and cultures, the remote banking system

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of the financial institution must be accessible to users in a number of different languages. If separate products must be created for each language, the financial institution is required to create and stock different software disks for different countries. Further, a user resident in a country which predominantly speaks one language may nonetheless wish to interact with the system in a different, second language -- particularly if the second, different language is the individual's native language. Also, differences in languages arise, not only from country to country, but within countries, cities and even households. Accordingly, there is a need for a system which can communicate in any number of languages without creating the problem and distributing different products, each specific to a different language.

Third, an international remote banking system will necessary rely on many service providers in many different countries which must be linked together. As a result, there is a danger that differences will arise in a given product between different locations, i.e., the products will "diverge." Product divergence causes a system to be prone to "bugs," which can interrupt service and cause lapses in security, allowing theft or compromise of data and assets. Similarly, product divergence may result in the "projected" product, i.e., the product received and viewed by the user, appearing differently in different locations. This will tend to disorient the user and undermine confidence in the system. Accordingly, it would be desirable to have a central location for the primary business applications so that the configuration of each application can be managed, the product projection held static and product divergence limited.

Nonetheless, certain service providers may require or desire additional, regional applications to be made available. These may result from regional legal requirements or financial products available only in that region. Thus, there is a need to allow local applications to "piggyback" on the system so that specialized services offered at specific locations may be maintained.

Also, in systems where the gateway for communications between the remote terminal and the host differ from country-to-country, different software and products must be created for each country. Accordingly, there is a need for a uniform

connection between remote terminals, computers, from different countries to a standard international host.

### **SUMMARY OF INVENTION**

5           The present invention provides an improved system and method for providing remote banking transactions, including home banking, which resolves the problems associated with provision of such services remotely and in an international environment. The improved system, referred to as the Global Delivery System comprises four elements: the User Software, the Server, the Router and the Service  
10   Provider. The User Software resides at the point of service, such as the user's personal computer, the bank branch or an ATM. The User Software communicates directly with the Server. The Server processes the incoming transaction with a set of resident business applications and directs the transaction to the Router, also referred to as the SFC Gateway. The SFC Gateway generally directs the transaction to the  
15   appropriate Service Provider, or, in certain situations, may itself authorize the transaction. The Service Provider may be the business host, e.g., the user's home institution, or may be an external Service Provider, such as a credit card company or a utility provider.

20           The User Software is a software program provided to the user for installation on the user's personal computer (PC). The User Software provides the basic functions needed to connect to the server, such as, information to authenticate the user and encrypt data transmissions; maintenance of the connection to the Server during the session; and help screens to assist the user. The User Software employs a modular architecture in which a main application invokes standard components, but may also  
25   incorporate local application content. The User Software uses a graphical user interface which is consistent with the interface used at other point of service locations, such as a customer activated terminal (CAT) at a bank branch, ATM or kiosk any place in the world. The User Software also allows the user to customize the configuration of the interface to a preferred language and dialing options.

30           The Server is a collection of one or more computers that connect the User

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Software to the Service Providers. The Server executes infrastructure and business or non-region specific application software. The infrastructure components include: 1) an Assembler/Disassembler for providing communications protocol between the User Software and the Server; 2) a Session Controller for supporting initiation, identification and termination of User software/Server sessions; 3) a CAT Terminal Protocol Interface (CAT-TPI), which supports the establishment and maintenance of the communications between the User Software and the applications, including protocol translation, message flow control, encryption and decryption and other User Software specific services; 4) a Terminal Application Front End (TAFE) which executes the business applications; 5) a CAT Session Manager (CAT-SM) which essentially oversees the session, enforcing business rules, authenticating the User Software and providing security and other process controls; and 6) a CAT Common Integrator (CAT-CI) formats messages as appropriate for different Service Providers. Other elements of the Server include the Activity Log Server which generates transaction logs, a Session Encryption Server which supports encryption and other security measures, and the Host Message and X.25 Normalizers which handle translation and protocol management tasks. The CAT-TPI, TAFE and CAT-SM remain active at all times to manage and "clean up" the system during and after each session.

The Business Applications are also resident on the Server. This helps ensure that security can be effectively managed by isolating the primary tools used by the user software in a single location. Furthermore, system upgrades and configuration management are simplified. Likewise, maintaining a unified projection to a variety of users is also possible. Numerous individual business applications reside on the Server in modular format, allowing the addition or subtraction of applications as desired.

The SFC Gateway, which provides the link between the Server and the Service Providers, may, but need not, be integrated into the Server.

Use of the system begins when the user installs the User Software on a personal computer. The software is installed on the computer's hard drive and various options are selected to configure the User software. For instance, the user can select a

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preferred language, bank call-up protocols, call-waiting disable, etc. The User Software can be reconfigured at will, should the need arise. The user then connects to the Server via a modem and inputs identifying information, such as a bank number and a security code to initiate the session.

5           Once the User Software connects to the Server, the Server contacts the Service Provider or Host and verifies the security measures. If the security measures are satisfied, a link joining the User Software, the Server and the Host is established. Once the link is established, marketing messages may be delivered from the Host to the User Software. Thereafter, the user can select from a variety of applications which  
10           allow the user to conduct business transactions, such as, paying bills; purchasing or selling investments, including mutual funds; reviewing information about potential investments; retrieving account information, including information regarding the user's securities portfolio; preparing transaction journals; transferring money between accounts; and obtaining user services, such as ordering new checks. Included  
15           throughout many of the transactions is the need to re-input the user's personal identification number (PIN). This provides additional security and verifies authorization of each transaction.

          The need for improved security is realized in the present invention through the use of hardware located in the Server to perform encryption between the Server and the Service Provider. The device will no longer function if a third party improperly  
20           tries to access it. Thus, computer "hackers" and the like have a more difficult time when attempting to tamper with the system because security system is maintained in a secured hardware device which is tamper-proof, and in a single location.

          The improved system contains data compression and error correction.  
25           Specifically, in the system the data flow is compressed in order to minimize the amount of time required to perform a transaction, thereby minimizing the equipment time committed for a transaction. Further, the improved system has an improved error detection system for detecting that an error has occurred in the transmission of data over the telephone line. The remote terminal, which typically has been a "dumb"  
30           terminal, is transformed by the User software into an "intelligent" terminal, which

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may detect, for example, that an error has occurred with regard to an incoming message. In such instances the "intelligent" terminal will not display the incorrect message but will rather work with the host computer to obtain and then display the correct data. Thus, the instance of unintelligible garbled messages being displayed upon the user's screen is minimized. This improvement minimizes the amount of time committed to re-transmitting data and thereby improves the overall efficiency of the transaction.

The improved system responds to the need for multi-lingual capabilities by enabling each user, during the User software configuration process, to select the language the user would like to use. Thereafter, that language appears on the screen of the terminal, for all communications. The improved system is sufficiently versatile to permit different users in the same household to use different languages when each accesses the terminal. Furthermore, the User software acts to translate the users commands into a standard protocol, thus eliminating the need for the Server to accept or provide for multiple languages.

The improved system incorporates standard connections between the terminals, such as home personal computers, and the host computer. Thus, regardless of the <sup>country</sup> ~~county~~ in which the user resides, the user will be able to access the host computer through the standard gateway. This, in turn, means that the financial institution will not need to generate a different product for each country but rather may prepare and distribute one product for all its users worldwide. The standard gateway involves a standard front-end processor between a host computer and the terminal. The use of this standard front-end processor permits any terminal to communicate with any of the host computers of the financial institution worldwide.

Accordingly, it is an object of the present invention is to provide an apparatus and method for performing banking transactions which makes these transactions available at both traditional and non-traditional points of services, including banks, ATMs, PCs and PDAs.

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A Another object of the present invention is to provide an apparatus and method for performing banking transactions which <sup>are</sup> ~~is~~ secure from intervention by unauthorized parties.

5 Another object of the present invention is to provide an apparatus and method for performing banking transactions which provides data compression to minimize communication time.

Another object of the present invention is to provide an apparatus and method for performing banking transactions which performs error detection and correction thereby avoiding anomalous or erroneous data displays.

10 Another object of the present invention is to provide an apparatus and method for performing banking transactions which uses a centralized server system on which the core business applications reside, thereby assuring consistent configuration projection to the user.

15 Another object of the present invention is to provide an apparatus and method for performing banking transactions which can accommodate business applications that are provided by specific service providers, where such applications are routed through a central server and system protocols are maintained.

20 Another object of the present invention is to provide an apparatus and method for performing banking transactions which can provide services in a plurality of languages in any region where such services are available.

A Another object of the present invention is to provide an apparatus and method for performing banking transactions which utilizes a standard interface used in all markets where such services are available.

X 25 Another object of the present invention is to provide an apparatus and method for performing banking transactions which utilizes an interface that can be configured with information specific to each user.

Other objects, features, and advantages of the present invention will become apparent with reference to the remainder of the written portion and the drawings of this application.



### BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is an overview block diagram of the integrated components and communication links which comprises this home delivery System for financial services.

5        FIG. 2 is an overview block diagram of the financial institution's server components.

FIGS. 3A-3D contain four screen shots representing examples of the graphic user interface (GUI) for the home delivery System for financial services.

FIG. 3A is the opening greeting screen.

10       FIG. 3B is the screen for entering the customer's identification number.

FIG. 3C is the screen for entering the name of the recipient.

FIG. 3D is the screen used to enter the recipient's branch.

FIG. 4 is a flow diagram for installation of home financial software to be stationed at the customer home personal computer (PC).

15       FIG. 5 is a flow diagram outlining the configuration of the home banking software. It allows the customer to configure the installed software to specific languages and modem types.

FIG. 6 is a continuation of FIG. 5 including more specific configuration for the modem.

20       FIG. 7 diagrams the flow process which allows the user to start a subsequent configuration. It allows the customer to re-configure previously loaded software specific to the user.

FIG. 8 is the hookup method between the client (customer) personal computer (PC) to the bank server.

25       FIG. 9 diagrams the process flow for downloading the marketing message table which is initiated by the host and downloaded to the home banking server to be displayed on the customer PC.

FIG. 10 is a continuation from FIG. 9.

FIG. 11 diagrams the process flow for accessing the customer payee list. The payee list provides the customer at home to have a list to make payments to on a regular basis.

FIG. 12 is a continuation from FIG. 11.

FIG. 13 diagrams the process flow for accessing the direct debit list. It allows the user to maintain, add or remove identities from the list.

FIG. 14 is a continuation from FIG. 13.

FIG. 15 diagrams the process flow for initially accessing the mutual fund application. This application allows the customer at home to buy and sell mutual funds utilizing their bank accounts.

FIG. 16 diagrams the process flow for performing a transaction to sell mutual funds.

FIG. 17 is a continuation from FIG. 15 and 16.

FIG. 18 is a continuation from FIG. 15 and allows the customer to select a mutual fund to buy.

FIG. 19 is a continuation from FIGS. 15 and 16 and allows the customer to start to review a mutual fund.

FIG. 20 is a continuation from FIGS. 15 and 16 and allows the customer to start the transaction account.

FIG. 21 is a continuation from FIGS. 15 and 16 and allows the customer to place the mutual fund order.

FIG. 22 is a continuation from FIGS. 15 and 16 and allows the customer to check the response to a mutual fund buy or sell.

FIG. 23 is a continuation from FIG. 16 and starts the mutual fund sell.

FIG. 24 diagrams the process flow for initially accessing the account information application. This application allows the customer at home to see balances or view historical transactions on accounts linked to a card. This figure specifically details the processes to send summary message.

FIG. 25 is a continuation from FIG. 24 detailing send summary message for account information.

FIG. 26 is a continuation from FIG. 25 and includes details to send a balance inquiry and to display balances.

FIG. 27 is a continuation from FIG. 26 .

FIG. 28 is a continuation from FIG. 27 detailing the processes involved for obtaining account information for securities.

FIG. 29 is a continuation from FIG. 28.

FIG. 30 diagrams the flow for account information when the customer requires additional information.

FIG. 31 is a continuation from FIG. 30 and diagrams the flow for account information pertaining to information obtained in transaction journals.

FIG. 32 is a continuation from FIGS. 28 and 31.

FIG. 33 is a continuation from FIG. 32.

FIG. 34 diagrams the process flow to re-enter personal identification number (PIN) as part of the Common Routine procedures. The processes identified can be initiated from different applications in the home banking modules.

FIG. 35 diagrams the process flow to check a profile response as part of the Common Routine procedures. The processes identified can be initiated from different applications in the home banking modules.

FIG. 36 diagrams the process flows of several small applications for checking response, and proceed with transaction processing accordingly, and for home processing.

FIG. 37 diagrams the process flow to retry a bad personal identification number as part of the Common Routine procedures. The processes identified can be initiated from different applications in the home banking modules.

FIG. 38 diagrams the process flow for standard errors as part of the Common Routine procedures. The diagram describes the flow based on different action codes (AC). The processes identified can be initiated from different applications in the home banking modules.

FIG. 39 diagrams the process flow for account resolver as part of the Common Routine procedures. It assists the customer to select a particular account if there are two or more accounts of the same product type.

FIG. 40 diagrams the process flow for account selection as part of the Common Routine procedures. It allows the customer to select product types and product groups from their home PC. The processes identified can be initiated from different applications in the home banking modules.

FIG. 41 diagrams the process flow for determining account or transfer currency amounts as part of the Common Routine procedures. The processes identified can be initiated from different applications in the home banking modules.

FIG. 42 diagrams the process flow for the overall procedures in the product select session.

FIG. 43 diagrams the process flow for the overall procedures in obtaining customer account information. The information may include sub-accounts and multiple accounts for a single customer.

FIG. 44 diagrams the process flow for the overall procedures to transferring assets from a source account to a destination account.

FIG. 45 diagrams the process flow for the overall procedures of customer service processing. The customer service processing contains five sessions. Two sessions, re-order checks and change PIN number are described in this figure.

FIG. 46 is a continuation of FIG. 45 and describes the three remaining customer service sessions. These sessions process and update request transactions, give notice transactions or print balance summary transactions.

FIG. 47 diagrams the process flow for the overall procedures for payment processing. Allows the customer to create a payment, change a payment, cancel a payment, and inquire on a payment.

### DETAILED DESCRIPTION

The home services delivery System is symbolically diagrammed in FIG. 1. A home banking customer **100** logs onto their IBM PC or IBM compatible personal computer **102** and selects the home banking program group with the appropriate icons. The customer accesses the bank server by selecting the icon that creates a link via the customers modem **104** using the public telephone network (x25) **106**. The server contains a set of modems **108**, linked to controllers **110** and communication interchanges **112**. The communication interchange allows communication between the server and the small financial System and router **114** that link a network of external business providers **118**, or business hosts **116**.

The Home Services Delivery System Client (FIG. 2) is a software program provided to the user that runs on the user's PC and accesses a Home Services Delivery System Server via a dial-up line. The Client supports local functions such as configuration, and, once on-line, displays screens sent to it from the Home Services Delivery System Server and handles user input to those screens. The Client infrastructure software provides the basic functions needed to connect to the Server, provide information to authenticate the user, and maintain the connection until the user concludes it. The Client infrastructure software also provides help screens on how to configure the software.

The Home Services Delivery System Client software supports the functions of setup, communication with the Home Services Delivery System Server, and terminal emulation in a standard reusable way, while at the same time allowing a customizable look and incorporation of local application content. It provides a modular Client architecture, in which a main application can invoke the standard components, but also be able to incorporate the local content.

As illustrated in FIG. 2, the Home Services Delivery System Client software consists of the Home Services Delivery System Client Windows Runtime Application **150**; the Installation Program **151**; the Configuration Program **152**; and the Help Function Utility **153**.

To provide a modular architecture, the Home Services Delivery System Client Runtime Application 150 includes the Main Menu Window, the Terminal Emulator, Dial-up communication modules, and modules providing functionality of security and printing.

5       The Main Menu Window provides the virtual bank screen for invoking the Home Banking application. It allows the user perform multiple functions, including changing configuration and to dial-up/hang-up to Server.

10       The Terminal Emulator is a standard Windows application. It contains an on-line application screen which provides the presentation space for the user to access the remote banking service. It is displayed to the user only when a connection has been established with Home Services Delivery System Server. It receives the application screens from the Server, accepts the user input, and builds the user input into a request message to send to the Server. It also provides the connection progress report to user during dialing up to the Server.

15       The Home Services Delivery System Client dial-up communication module (COM) uses the modem to dial-up the remote Server, starts sliding window protocol (SWP) to communicate with the Server, and passes data/messages between the Server and other components in the Client.

20       The Security Module (SEC) provides the functions required by the Home Services Delivery System runtime application to encrypt the customer's confidential information before sending it to the Home Services Delivery System Server over the public telephone network.

25       The Installation Program 151 creates a directory structure for installing software; copies the software from the installation diskette to the hard disk in the user's PC; creates the program and icons; creates and installs any initialization files as necessary; and installs required operating resources, such as fonts used by the Home Services Delivery System Client runtime application.

30       The Configuration Program 152 configures the required parameters, such as the phone number of remote Server, the modem type, for the Home Services Delivery System Client application.

The Help Function Utility 153 provides the help information invoked by a standard help utility to assist the user with configuring and running the Home Services Delivery System Client application.

5 The Client System is furnished with software which incorporates a Graphical User Interface (FIGS. 3A-3D), which provides a user-friendly method of interaction with the System for the customer at their personal computer under the Microsoft Windows environment. This interface allows for the design of a global "look and feel" for consistency of interaction between the customer and the underlying Systems, either through the use of this invention at home or through other Systems such as a  
10 "customer activated terminal" (CAT) at a kiosk or bank branch. This global "look and feel" can also provide consistency of interaction when a customer travels to other countries and accesses the System. Items 190, 192, 194, 196 illustrate the GUI and are examples of screens with which the customer will interact.

15 The System follows a consistent navigation flow through the System which incorporates multiples of features. Customer session screens have a "HOME" button 194 and 196 which returns the user to the main menu. An "EXIT" button is provided on the main menu screen which allows the user to exit the System. Some screens will also incorporate a "BACK" button which takes the user to a previous menu or sub-menu.

20 The System allows users to select their language if choice during installation and configuration of the Client software. Thereafter, the customer will interface with the System using that pre-configured language. FIG. 4 illustrates the installation and FIG. 5 through FIG. 7 illustrate the configuration process for the Client software.

25 The Home Services Delivery System Server (FIG. 2) is the collection of one or more computers that connect Home Services Delivery System Clients to the business host and to other external service providers. The Home Services Delivery System Server executes both infrastructure as well as business- or region-specific application software.

30 The application software is confined to the Server in order to ensure that the application runs in a secure environment; make it possible to upgrade the applications

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at a central location without having to distribute new software to all users; and make it possible to ultimately project a single application to a variety of Client machines.

The components of the Home Services Delivery System Server integrated to support home banking applications include the Home Services Packet

5 Assembler/Disassembler (HSPAD) 160 ; Session Controller (SC) 162; CAT Terminal Protocol Interface (CAT-TPI) 164; Terminal Application Front-End (TAFE) 166; CAT Session Manager (CAT-SM) 168; CAT Common Integrator (CAT-CI) 170; Business Applications 172; Activity Log Server (ALS) 174; Secure Encryption Server (SES) 176; Host Message Normalizer (HMN) 178; Small Financial CAT Gateway (SF/SFC) 180; and the X.25 Normalizer (X25.-NI) 182.

10 The Home Services Packet Assembler/Disassembler 160 serves as a communication protocol between the Client and the Server HAL link-level protocol. The Session Controller (SC) 162 functions includes support for a mechanism to start up a configurable number of static triplets based on the type of Client they must  
15 service, support for a set of executable arguments that are unique to the trio of processes associated with each home banking session, support for a pool of Terminal IDs that have been assigned to the Server by the business, and support for exchanging session-initiation (SI) and session-termination (ST) messages with the CAT-SM.

20 The Terminal Interface 164 is the software in direct contact with the application, whether it is running in a terminal or on the Host. It provides services to establish and maintains the link level connection with terminals, translates between protocols, manages the link level message flow control, generates the encryption key, encrypts/decrypts, and performs special services as required by individual interfaces.

25 The Terminal Application Front-End (TAFE) 166 serves as the run-time interpreter that executes business applications on the Server and provides a set of API's used by the interpreter to perform System functions.

30 The CAT-SM session manager 168 is the intelligence of the session, representing the interests of the business, and communicating with both the Terminal Interface and the Integrator. Its functional responsibilities include enforcing the business rules of the interface, verifying the customer identity and enforcing security



safeguards, establishing and maintaining the session context, monitoring and enhancing messages, providing flow control for list processing between Home Services Delivery System and the application and managing the activity log recording.

The CAT-CI common integrator 170 applies message level rules required to format messages correctly to talk with different business Hosts.

The Activity Log Server (ALS) 174 provides support for CAT application-generated transaction logs. Existing transaction logs are written to disk files.

The message-level interface to the ALS supports a unique transaction type (e.g., function code) for log each type (home banking application or System-generated).

The Session Encryption Server (SES) 176 supports encryption key downloading, PIN unscrambling and PIN encryption.

The SFC Gateway 180 serves as a link level protocol converter. It has an external interface to a "Small Financial Services" (SFS) Host and internal interface to an MCS "Common Integrator" (CI) process in support of application messages. It also has an internal interface to the MCS Local Network Control Facility (LNCF) to support network control of the gateway. Application message level text is transparent to the SFC Gateway.

The SFC Gateway is used to transfer application messages between MCS entities and the external Host 184. Financial application messages are transferred between CAT applications and the external Host. Network control application messages are transferred between the Host and a node resident LNCF.

The SFC Gateway is bi-directional allowing request messages to be initiated by either the external or internal side.

The X.25 Normalizer (X25.-NI) 182 serves to keep the gateway independent of the link-level protocol.

CAT sessions will be "pre-started" at System initialization time—thus the trio of processes (CAT-TPI, TAFE, CAT-SM) that service a CAT session are considered static—that is, they are started before the Client attempts to connect to the System.

The pre-start is necessary for optional performance.

The trio of processes (i.e., triplet—CAT-TPI, TAFE, CAT-SM) that service each session remain active until the System is reinitialized (rebooted). At the end of a session, the triplets take the necessary steps to "clean up" the current session—reinitializing session state and data context in preparation for servicing another Client.

5 A session is typically terminated in one of three ways:

Application initiated. For example, the customer presses the exit button on an application screen.

Client initiated. For example, the disconnect packet is sent at the link level (this occurs when the customer selects exit from a local menu).

10 CAT-TPI initiated. For example, the line is dropped or some other communication error occurs.

If one of the triplets fails due to a fatal error (e.g., memory allocation), the entire group will be restarted by the Server Controller.

15 The Server configuration allows for the subsequent addition of applications to the System as they are developed for future expansion to support new functions. FIG. 2 shows the business applications structure 172 of the Server, where new applications will reside. During the installation of the Server components, partition is created. This partition is used to house application software releases. For each application type, there is a base directory (for example, home banking). The base directory contains two sub-directories, which hold the primary and secondary software releases. The target structure within these directories can vary depending on the application type. All applications are table-driven, and as new applications are added, the appropriate new tables are downloaded to provide the mechanism for the new applications to  
20  
25 be invoked.

The Home Services Delivery System diagrammed in FIG. 1 is symbolically flow charted beginning in FIG. 4 at 200. The customer begins with the installation process on the home computer. The installation process will assist in the process of providing the home computer with configuration programs, help function utility, and  
30 home banking runtime applications. The installation starts by installing disk #1 and

selecting setup from the A drive that begins the initialization process. The customer visually sees a splash screen on the monitor **202** introducing the customer to the installation. The installation program displays a language selection box **204**, prompting the customer to select a language preference from the menu list. The installation displays the operating version on the screen **206**. The installation program prompts the customer to enter a drive/directory to install the program **208**. If the drive/directory selection is not accessible **210**, then the customer is prompted to select cancel **212**, that halts the installation process **214**, and the installation program exits the computer's operating System **216**. If the drive/directory selection is accessible, then the program checks to make sure there is not another version of the program on the selected drive\directory **218**. If there is another version of the application(s) present, then the System displays a box indicating a previous version of the installation program has been detected on the selected drive\directory **220**. The customer may choose to continue with the installation **222** which will override the previous version and begin installing the software on the client's computer **224**. The customer may also choose to not continue with the installation **222**, allowing the customer to select a different drive\directory for installation. If a previous version has not been detected **218**, then the System installs the software on the client's computer **224**. Once disk # 1 is installed, the customer is prompted to insert disk #2 **226**. The customer can choose to continue with the installation **228**, displaying the percent complete indicator **230**. The installation continues, with the System displaying messages a) program manager icons created, b) fonts installed, and c) installation complete **232**. The System then boots out of the installation program and returns to the operating System **234**.

After the installation program has been completed, the home computer is configured for operation in the home environment. The System displays a program group and a icon on the desktop for the customer to launch the configuration program. This configuration program runs only once during the initial program startup. The configuration program described in FIG. 5 starts by displaying a splash screen **250**. The System displays the name and bank card dialog box screen **252** prompting the

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customer to enter their name and bank card number 254. If either the name or bank card number is not entered, the customer is prompted to cancel 256, or returns to the dialog box 258 to enter customer's name and bank card number 254. If the customer chooses cancel, the System returns a dialog box as to whether the customer is sure to cancel 260. If the customer chooses yes, then the program exits to the operating System 262. If the customer chooses no, then the program returns to the dialog box to enter customer's name and bank number 258.

If the customer properly enters their name and bank card number, then the customer may select a language from the dialog box to communicate with the bank server 266. The System displays a dialog box indicating that the configuration program is checking the modem 268. If the modem is not found 270 the System will display a dialog box indicating that the modem has not been found 274. The customer will be prompted again to retry 276. If the customer selects cancel, the System prompts customer to cancel 256. If the customer chooses yes, then the System prompts the check modem dialog box 268. A dialog box is displayed on the next screen 278 allowing the customer to select modem parameters. If the customer selects cancel, the System prompts customer to cancel 256. If the customer selects back, then the System returns to the language selection dialog box 280. If the customer chooses next, or if the modem was found in the initial checking for the modem 270, then the System displays a dialing method dialog box<sup>300</sup> flowcharted on FIG. 6 ~~300~~.

The customer may choose before or after entering the dialing method (rotary or push-button) at the dialing method dialog box to "Cancel" which prompts the cancel dialog box (FIG. 5) 256, or may choose "Back," which returns the customer back to the select language dialog box (FIG. 5) 266. The customer may also choose next after entering the dialing method 300, that displays the outside line code dialog box 306. The System prompts the customer to enter a set of numbers if the customer needs to dial extra digits to reach an outside line. The customer may again choose "Cancel," returning the customer to the cancel dialog box (FIG. 5) 256, or may choose "Back," which will return the customer to the previous screen. Choosing next delivers the disable call waiting dialog box 308, prompting the customer to enter the

disable call waiting code. The customer may again choose "Cancel," returning the customer to the cancel dialog box (FIG. 5) 256, may choose "Back," which will return the customer to the previous screen, or choose "Next."

Where needed, such as in Belgium, the System will display a re-enable call waiting dialog box 310 when "Next" is chosen from the disable call waiting dialog box. The customer may again choose "Cancel," returning the customer to the cancel dialog box (FIG. 5) 256, may choose "Back," which will return the customer to the previous screen, or choose next that will display the phone number dialog box 312. This dialog box will prompt the customer to enter a primary and secondary number to the bank for dialing purposes. The customer may again choose "Cancel," returning the customer to the cancel dialog box (FIG. 5) 256, may choose "Back," returning the customer to the re-enable call waiting dialog box 310 if the System is configured for enable call waiting 314, or to the disable call waiting dialog box 308 if the System is not configured for enable call waiting. The customer may also choose "Finish" that will display, if not entered previously 316, a dialog box indicating that the customer must enter the primary phone number in the phone number dialog box 318. If the customer has already entered a primary number, then the initial configuration is complete, and the bank greeting screen is displayed 320. The customer may either exit the program 330, select the dial button to access the bank server 322 described in FIG. 6, or run the subsequent configuration program 326 described in FIG. 7 by selecting the "Configure" button.

The customer may add a configuration, modify a configuration, or delete a configuration using the subsequent configuration flow. Once the configure button 352 is selected at the greeting screen 350, the System displays a list of customers provided access 354. The customer may add users 356, or modify users 358, by activating the add/modify user profile dialog box 372. The customer can enter user profile information into the appropriate spaces, or can select from the pull down menu selections. The System prompts the customer to change the modem settings 374. If the customer chooses to add or modify the modem settings 376, then the System displays a modem settings dialog box, allowing the customer to add a modem setting

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or modify an existing setting. If a modem setting can't be initially found, the customer can select find modem 378 that displays a dialog box indicating the port the System is checking. The System will return back to the modem settings dialog box if the modem was found, where the customer can select OK to save the modem settings 380. The System then returns to the add/modify user profile dialog box 372, where the customer can select OK to save the user profile 382.

When the System prompts the customer to change the modem settings 374, the customer may also choose not to make any changes. The System will look for a customer name and card number 384, and if present, the customer a save the user profile data by selecting OK 386. The System then returns to the add/modify user profile dialog box 372, where the customer can select OK to save the user profile 382.

If the customer does not wish to add users 356, or modify users 358, and if the customer wishes to delete a user 360, then the System will check if the deletion is the last listed user 362. If the customer attempts to delete a last listed user, then a dialog box appears on the screen indicating that the customer can't delete the last user. The customer select OK, saving the user profile data 364. If the deletion is not the last user, then the deletion may proceed, and the System will display a dialog box asking if the customer is sure 366. If the customer chooses yes, then the user information is deleted from the initialization file of the home banking program 368. If the customer chooses no, or if the customer chooses no when the System asks if the customer wishes to delete a user 360, then the System returns to the display with a list of users

354. *server 322 as described in FIG. 6, then the System sends an authorization message to*

*If the System selects the dial button to access the bank server, as described in the bank server (FIG. 8) 400*  
~~FIG. 6 322, then the System sends an authorization message to the bank server FIG. 8~~

400. The authorization message is then sent to the bank security server 402. From the security server, the authorization message is next to the bank hardware encryption devise 404, then to the business host for hookup authorization 406. The business host sends a response back to the server to provide access 408. A link is formed between the customer, bank server and business host 410.

09077456 "052999  
 966250" 9542060

PK  
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Marketing messages can be delivered to the home customer when initiated by the small financial System as described in FIG. 9. The small financial System requests to download the most recent marketing message table to the home services delivery System 500. The System sends a message to the integrator to end session 502. If a data exchange code is not present 504, then no marketing message table download will be conducted 506, and the System application remains in product select 508. If a data exchange code is present, then the System takes the CAT out of service to allow for marketing message download 510. Data exchange code routing value other than two 512 have been assigned to future applications 514. If the data exchange code routing values equals two 512, then the System checks if the updated table is available 516.

If the updated table is available for download, then the System compares the home banking code table time stamp to the host table code 518. If the time stamps are the same, then the System sets the download status code to already loaded 520. If the codes are not the same, and if the home banking table code is greater (after) than the host table code 524, then the System sets the download status code to have a newer table 522. In both cases, the System then directly sets the index position indicator to spaces 562 as described in FIG. 10.

If the home banking table code is less than the host table code, or if the Updated table is not available for download, then the System must set the marketing message old table to the marketing message Updated table as well as setting the table time stamp save to the home banking table code 528 for the System to obtain the marketing message table 530.

To obtain the marketing message table from the small financial System, the System needs to set the index position indicator as described on FIG. 10. To begin downloading, the System sets the index position indicator to spaces 568, and set the download status code to ready for next message 570. The small financial System sends a message via the integrator to request to send marketing message 572. The System checks the action code 574, and if the action code is not equal to zero, then the System sets the download status to load failed 578 and the process is terminated 582.

If the code is equal to zero, then the System adds entries from the message to the marketing message table 576. The System then checks if the index position indicator is equal to the spaces 580. If it is equal, then the System checks if the download status is equal to zero (FIG. 9) 534. If the download status is not equal to zero, then the System directly sets the index position indicator to spaces 562. If it is equal to zero, then the System sets the home banking table code to the host table code (FIG. 10) 550, before writing to the hard disk the marketing message Updated table and the home banking table code 552. If the write was successful 554, then the System sets the download status code to good completion 560. When it is not greater, then the marketing message Updated table must be set to the marketing message save table 556, with the download status code set for load failed 558.

Once the download status codes have been set, and the index position indicator to spaces has been set 562, then the host send a message via the integrator to send marketing message 564. Once the marketing message has been sent, the System returns to product select 566.

The home services delivery System provides the customer with the mechanism to maintain an updated payee list for their account as described in FIG. 11. This process is initiated when the customer sends a profile response 600, which activates profile response flow as described in FIG. 35. The customer waits for a profile message return 604, and the System sends a message via the integrator to the host for the retrieval of the customer's payee list 606. Once the response has been received 608, the customer decides what type of action to take. The customer may choose not to delete a payee from the list, but to view the payee list 660 as described in FIG. 12. The customer may choose to delete a payee from the list (FIG. 11) 610, whereabouts the System returns the payees list and the customer determines the number of payees 614. If the System returns no payees, then the System displays an error message 616, and activates the product select transaction selection 618. If the System returns the number of payees equal to one 620, then the System displays the payee's record 622.

The customer at this time may choose to delete the payee from the list 624, where the System prompts the user to re-enter their personal identification number



(PIN) 626, as described in FIG. 34. The System will then send a message via the integrator to the host to delete the payee from the customer's list 630. Once the response is received 632, the System queues the record 634, before exiting the module to the product select transaction selection 618. If the customer chooses not to delete the payee from the list 624, then the System displays a message that the customer has chosen not to delete payee from the list 636, where the System then exits to the product select transaction selection 638.

When the System returns the payee list 614 and the customer determines that the System returned more than one payee 640, then the customer has to choose which payee to delete 642. If the customer selects the payee to delete with the information given, then the System will display the payee record 622. However, if the customer requires more data 644, then the customer can divide the payee list into sections 646, and then the System sends a message via the integrator to the host for the payee list 648 to provide additional information to the customer 650.

As previously indicated, the customer may not wish to delete a payee from the list 610, but may wish to view their payee list 660 as described in FIG. 12. If the number of records on the payee list is zero 662, then the System returns a no payee response and displays an error message 676 before exiting to the product select transaction selection 678. If the number of records does not equal zero, the System returns the payee list for viewing 664. If the customer wishes to view additional payees from the list 666, and if the customer requires more data 668, then the customer can divide the payee list into sections 670, and then the System sends a message via the integrator to the host for the payee list 672 to provide additional information to the customer 674.

The home services delivery System provides the customer with the mechanism to maintain an updated direct debit list for their account as described in FIG. 13. This process is initiated when the customer sends a profile response 700, which activates profile response flow as described in FIG. 35. The customer waits for a profile message return 704, and the System sends a message via the integrator to the host for the retrieval of the customer's direct debit list 706. Once the response has been

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received 708, the customer decides what type of action to take from the direct debit list received from the System 710. If the customer determines that the System returned more than one direct debit 712, then the customer has to choose which direct debit to display 714. If the customer selects the direct debit with the information given, then the System will display the record 750 as described in FIG. 14. However, if the customer requires more data (FIG. 13) 716, then the customer can divide the direct debit list into sections 718, and then the System sends a message via the integrator to the host for the direct debit list 720 to provide additional information to the customer 722.

If the System returns no direct debits, then the System displays an error message 728, and activates the product select transaction selection 730. If the System returns the number of direct debits equal to one 724, then the System displays the direct debit record 750 as described on FIG. 14.

Prior to canceling a direct debit record, the customer may choose to view the transaction type 752. The customer may also choose not to cancel a direct debit record 756. If so 758, the System will activate the product select transaction selection 754. However, if the customer does wish to cancel a direct debit, then the System prompts the user to re-enter their personal identification number (PIN) 760 as described in FIG. 34. The System then sends a message via the integrator to the host to cancel the direct debit record (FIG. 14) 764. If the System returns a response of fifty-one 766, the customer must retry their PIN as described on FIG. 37. The System then re-sends the message via the integrator to the host to cancel the direct debit record 764 with the correct PIN. If the System returns a response of zero 774, then the System displays a message that indicates that the customer has chosen to cancel the direct debit record 776. The System will then queue the record 778, prior to exiting to the product select transaction selection 754. If the System returns a response to the cancel direct debit of other than zero or fifty-one 770, then the System checks for standard errors as described in FIG. 38.

An additional feature of the home services delivery System is that the customer may buy and sell mutual funds from their home as described starting with

FIG. 15. The process of buying mutual funds is flowcharted beginning with FIG. 15, and includes FIGS. 17-22. The process of selling mutual funds is flowcharted beginning with FIG. 16 and includes FIGS. 17, and 18 through 23.

Buying mutual funds is initiated when the customer sends a profile response  
5 FIG. 15, **800**, which activates the profile response flow as described in FIG. 35. The customer waits for a profile message return **804**, and the System responds by asking if the customer has designated a security account **806**. If the customer is required to have a designated security account, but does not have one **808**, then the System displays an error message that no security accounts are available **810** and the  
10 transaction is ended with the System exiting to product select transaction selection **812**. If the customer is not required to have a designated security account, or if the customer is required to have a designated security account and has at least one security account **808**, then the System sends a get mutual fund message and begins to retrieve mutual fund data from the host **814** as described in FIG. 17. The customer selects which mutual fund to purchase **818**, as described in FIG. 18, which the customer may choose to review **822** as described in FIG. 19, prior to entering the buying amount **826** as described in FIG. 42. The customer is then asked to enter a transaction account **830** as described in FIG. 20, and a security account **834** if required to specify **836**. If the customer is required to specify security account **836**, then the  
20 System determines if the number of security accounts is equal to one **838**. If the number of accounts is one, then the account is set **844**. But when the number of accounts is not one then the System prompts customer to set security account of choice **840**. Once a security account is selected by customer **842**, and the account is set **844**, the customer may place the mutual fund order **846**. If the customer is not  
25 required to specify the security account, then the customer may directly place a mutual fund order as described in FIG. 21. The customer re-enters their PIN number **850**, as outlined in FIG. 34, and then sends a message to the host via the integrator for sell mutual fund authorization **854**. The customer checks the mutual fund transaction response **856** as described in FIG. 22, and after the successful transaction **860**, the

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record is queued and the order placed 862, prior to the System exiting to the product select transaction selection 864.

A  
5 Selling mutual funds is initiated when the customer sends a profile response FIG. 16, 874, which activates the profile response flow as described in FIG. 35. The customer waits for a profile message return 876, and the System responds by sending a get mutual fund message and begins to retrieve mutual fund data from the host 880 as described in FIG. 17. Once received, the customer selects the mutual fund to sell 884, as described in FIG. 23, and reviews the mutual fund 888, as described in FIG. 19. If the customer chooses to sell all the shares of the mutual fund 892, then the System sets the sell all flag to true 898. If the customer chooses to only sell a portion of the mutual fund shares, then the System prompts the customer to enter the mutual fund sell amount 894, as described on FIG. 42. After the customer has made the decision as to the amount of shares to sell of a particular mutual fund, the System prompts the customer to enter a transaction amount 900 described in FIG. 20 that allows the customer to place a mutual fund order 904, as described in FIG. 21. To place a mutual fund order, the customer must re-enter their personal identification number 908 as described in FIG. 34 that enables the customer to send a message via the integrator to the host for sell mutual fund authorization 912. The customer checks the mutual fund transaction response 914, as described in FIG. 22, and after the successful transaction 918, the record is queued and the order placed 920, prior to the System exiting to the product select transaction selection 922.

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FIG. 17 outlines the process of retrieving mutual funds from a host and being able to sell mutual funds from a home banking delivery System. The process begins when the customer sets the action to buy or sell mutual funds 930. A message is sent via the integrator to the host to list mutual funds 932. If disclosure is required 934, then the System displays the disclosure screen 936. At this point, the customer may continue with the process 938 or exit application and activate product select exit processing 940. If a disclosure is not required, and if the customer has not received a message response yet 942, then the System waits for a response from the host and displays the appropriate screen 944. If a response received is equal to zero 946, then

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more data will be needed to be sent to the host 956, and the process will begin at the point where the customer sets the action to buy or sell mutual funds 930. If there is no more data needed for the host, then the System continues with the mutual fund application described on FIGS. 15 and 16.

5 If the response received from the host is equal to 64 948, then the System will display a message that the process can not be completed 952, and the System activates the product select transaction selection 954. If the response from the host is other than 00 or 64, then a standard error is committed as described on FIG. 38.

10 If the customer wishes to make a selection for a mutual fund to purchase, then the System accesses the number of mutual funds from the host as described in FIG. 18. If the number of mutual funds returned equals zero 970, then the System displays a message stating the inability to perform the process 986, and the System exits the application and activates the product select transaction selection 988. If the number of mutual funds is greater than zero, but does not equal to one 972, then the table is  
15 created returning each mutual fund type only once 974. If the number of mutual fund types in the table is equal to one 976, then the mutual fund is selected 982. If the number of mutual funds is more than one, then the customer selects a mutual fund 978. Once the customer has chosen a mutual fund 982, or if the number of mutual funds returned from the host equals one 972, then the System determines if the  
20 selected mutual fund can be purchased from a home banking environment 980. If the mutual fund can not be selected from the home banking environment, then the System displays a message stating the inability to place the mutual fund order 990, and the System exits the application and activates the product select transaction selection 988. If the mutual fund can be selected from the home banking environment, then the  
25 mutual fund selection is placed 982 and the System continues with the mutual fund application described on FIG. 15.

Prior to entering a buying or selling amount for the mutual fund, a customer will be able to review the mutual fund performance (FIG. 19). If the customer is buying a mutual fund 1000, and if the fund is owned 1002, and if the fund is not held  
30 in more than one account 1004, then the System displays the owned mutual fund

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information that is for purchase 1006. If the fund is not owned, or if an owned fund is held in more than one account, where the System does not allow the customer to be involved in purchasing the mutual fund, and the System will display new mutual fund information for purchase 1008. If the customer is involved in selling a mutual fund, then the System directly displays the mutual fund information 1010. The System displays any fee or restrictions associated with the mutual fund 1012, and if the customer wishes to continue 1014, then the status of the mutual fund purchase or sell remains unchanged 1016, and the System continues with the mutual fund application described on FIGS. 15 and 16. If the customer does not wish to buy or sell the mutual fund, then the System displays a message that the order will not be placed 1018, and the System exits the application and activates the product select transaction selection 1020.

Once the customer has entered the buying or selling amount, the System prompts the customer to enter a transaction account (FIG. 15,) 830, or (FIG. 16,) 900. If the System does not return a transaction account 1030, then the customer enters a transaction type code to specify buying or selling of a mutual fund 1032. If the customer is buying a mutual fund, then the System displays a screen asking the customer to select an account to withdraw from 1034. If the customer is selling a mutual fund, then the System displays a screen asking the customer to select an account to place the money from the sell 1036. Once the customer has selected an account 1038, as described on FIG. 40, then the source account must be resolved 1042, as described on FIG. 39. This process will set the account to the selected transaction account 1046 and the System continues with the mutual fund application described on FIGS. 16 and 17.

If the System returns a transaction account directly 1030, then the System checks if the transaction account is in the customer's profile 1048. If the transaction account is not in the customer's profile, then an application error occurs 1049, and the System displays an application error 1050, before exiting to product select 1051. When the transaction account is in the customer's profile, then the System sets the

customer account to the transaction account **1052**, and continues with the mutual fund application described on FIGS. 15 and 16.

After completing the previous procedures, the customer is ready to formalize the buying or selling of a mutual fund **1060** as described on FIG. 21. If the customer is buying a mutual fund, the System displays a message to customer that a buy order is to be placed **1062**. If rounding disclosure is not required **1064**, then the customer decides on whether to place the order **1066**. If the customer decides not to place the order for the selected mutual fund, then the System returns a message that the order will not be placed **1068** and the System exits the application and activates the product select transaction selection **1070**. When the customer chooses to place and order **1067**, the System continues with the mutual fund application described on FIGS. 15 and 16.

The System displays the rounding disclosure when required **1072**, and will give the customer the same choice of choosing to place the mutual fund order **1066**.

If the customer is to sell a mutual fund, then the System checks if the sell all flag is set for true **1074**, in which case the System displays a message that the customer is ready to place sell order by shares **1078**. If the sell all flag is not set for true **1074**, then the System displays a message that the customer is ready to place sell order by dollar amount **1076**. In both cases, the customer will be given the same choice of choosing to place (sell) the order.

When the mutual fund order has been set, the customer may check the mutual fund transaction response as described on FIG. 22. This portion of the application is driven by the responses using action codes. If the action code is equal to zero **1100**, then the System continues with the mutual fund application **1102** as described on FIGS. 15 and 16. However, if the action code response is not zero, but is four **1104**, then the System sets a reversal reason code to the host for a time-out **1106**. If the action code response is equal to five **1108**, then the System sets a reversal reason code to security device **1110**. If the action code response is twenty nine **1112**, then the System sets the reversal reason code to integrator format error **1114**. For the above action codes except for zero, the System sends a message via the integrator to the host

to reverse the mutual fund order 1116. If the action code response is fifty-one 1118, then the customer has entered a bad PIN 1122 and the System checks for bad PIN as described in FIG. 37. For all responses except zero and fifty-one, the System looks for standard errors as described on FIG. 38.

5           When the customer is selling a mutual fund and has retrieved the mutual fund data for review as described in FIG. 16, the customer may need to make a selection as to which mutual fund to sell as described in FIG. 23. If the number of mutual funds returned for sell is equal to one 1130, then the System determines if this process is allowed in a home banking environment 1132. If the process is allowed, then the  
10           mutual fund order continues as described on FIG. 16. If the process is not allowed, then the System displays a message that the order can not be placed in a home banking environment 1134 and the System exits the application and activates the product select transaction selection 1138. If the mutual funds returned is equal to zero  
15           1140, then the System displays a message that no mutual funds are available 1142, and the System exits the application and activates the product select transaction selection 1144.

20           When the number of mutual funds returns is not zero or one, then the System attempts to designate a security account 1146. If there is no security account, then the System displays a message to the customer to select a mutual fund 1148, and the System determines if this process is allowed in a home banking environment 1132. If the process is allowed, then the mutual fund order continues as described on FIG. 17. If the process is not allowed, then the System displays message that the order can not be placed in a home banking environment 1134 and the System exits the application and activates the product select transaction selection 1138.

25           If the customer can designate a security account, and if the number of security accounts is equal to one 1150, and if the number of funds in the security account is not equal to one 1154, then the customer can select a mutual fund in the security account to sell 1156 as long as the process is allowed in a home banking environment. If  
30           needed, the customer can select a security account 1152 when there are more than one security account.



Another function which the customer can perform on their home (client) personal computer is retrieving account information. The account information application provides the customer to see balances or view historical transactions on accounts linked to a customer's account as discussed on FIG. 24. When the customer selects account information from the menu choice as shown on FIG. 3, the System sends a profile response (FIG. 24) **1200** to determine the number of customer accounts as described on FIG. 36. The customer waits for a message return **1202**, and at such a time, the System will prompt the customer to re-enter their personal identification number **1204** as outlined on FIG. 34. When there is only one account in the customer's profile **1206**, then the account is set **1208** and the System begins to retrieve specific account information as described in FIG. 26. If the System returns a number of customer accounts greater than one **1206**, and if the System checks determine that the message summary request flag is set for false **1212**, then the summary transaction is successful **1220**. If the System checks determine that the message summary request flag is set for true **1212**, then the customer can request that a message is sent to the host to send the summary request information of the account **1214**. After the request has been made **1216**, then the message summary request flag is set to false **1218** to allow for a successful summary transaction **1220**. When the number of categories returned is not equal to one **1222**, then the System checks if the summary totals flag and the financial overview flag are on **1224**. If the flags are not on, or if the flags are on, but no totals are returned **1228**, then the System displays the summary with no totals **1226**. The System displays the summary with totals **1230** when totals are returned. In both cases, the customer may choose not to continue with account category selection **1232**, and to exit the application **1234**.

If the customer chooses to continue by selecting a category **1235**, or if the number of categories initially returned **1222** was one, then the System checks if there are any accounts in the customer selected category **1236**. When no accounts are located in the category **1238**, the System exits specifically to the product select-transaction selection application **1240**. When one account is located in the category **1242**, then the System sets the account **1244** and the System continues to account

balance/inquiry as described on FIG. 26. But when the customer has more than one account in the selected category, then the System sets the list of accounts equal to all the accounts in the category 1246, and a screen display appears with the product details 1248. If the customer selects an account at this time 1250, then the System sets the selected account 1252, and continues to account balance/inquiry as described on FIG. 26. If the customer chooses not to select an account, and the number of categories returned is equal to one 1254, then the System exits the application to product select 1256. When more than one category is returned, the System returns to allow the customer to select an account in the category 1235.

One of the submenu functions that exists under account information is the account inquiry and balance information as described on FIG. 26. The System will initially determine the product class of the information requested. When the product class is not a securities or mutual fund 1300, then the System sends a message to the host to send balance information 1302. The customer waits for the response from the host 1304. When the account information transaction returns 1306, the customer may immediately print the balance 1308, queuing the data for printing 1310. After printing is complete (if chosen), the System determines what type of product class the request is for. If the product class is a savings with notice, plan epargne logement, loan, time deposit, or installment savings 1312, then the System will display the appropriate message 1314. All other product classes are described on FIG. 27.

When the information requested is for a savings with notice, then the System displays a message "Here is your savings with notice" 1316 with available data about it included on screen (FIG. 26). When the information requested is for a travel and entertainment cards, then the System displays a message "Here is your travel and entertainment cards" with available data about it included on screen 1318. When the information requested is for a loan, then the System displays a message "Here is your loan" with available data about it included on screen 1320. When the information requested is for a combined checking and combined revolving credit, then the System displays a message "Here is your combined checking and revolving credit" with available data about it included on screen 1322.

Additional types of product class data messages included in this portion of the application are discussed on FIG. 27. When the System displays the appropriate message 1324, and the information requested is for a time deposit, then the System performs a series of identifications as to the different types of deposits the customer is inquiring on. When the product type is a time deposit 1326, then the System displays a message "Here is your time deposit" with available data about it included on screen 1328. When the product type is a certificate of deposit 1330, then the System displays a message "Here is your certificate of deposit" with available data about it included on screen 1332. When the product type is a premium high yield deposit 1334, then the System displays a message "Here is your prem/prov one time version" with available data about it included on screen 1336. When the product type is a savings certificate 1338, then the System displays a message "Here is your savings certificate" with available data about it included on screen 1340.

For installment savings 1342, there are two different product types. For prem/prov installments, the System displays a message "Here is your prem/prov installment version" with available data about it included on screen 1344. The other type of installment savings offered are government sponsored savings 1346, which the System displays a message "Here is your government sponsored savings" with available data about it included on screen 1346.

When the product type is a plan epargne logement, the System displays a message "Here is your plan epargne logement" with available data about it included on screen 1348. When the product type is a combined savings, the System displays a message "Here is your combined savings" with available data about it included on screen 1350. When the product type is a deferred debit, the System displays a message "Here is your deferred debit info" with available data about it included on screen 1352. When the product type are revolving charge cards, the System displays a message "Here is your revolving charge cards" with available data about it included on screen 1354.

Two product types that share functions are revolving loan and checking.

When the product type is a revolving loan **1356**, the System determines if the sub-product code is 1 through 25 **1358**. If the sub-product code is not 1 through 25, then the System displays a message "Here is revolving loan" with available data about it included on screen **1360**. When the revolving loan sub-product code is 1 through 25, then the System displays a message "Linked checking/revolving credit" with available data about it included on screen **1362**. When the product type is checking **1364**, and the sub-product code is 1 through 25 **1366**, then the System again displays the same message **1362**. But when the checking sub-product code is not 1 through 25, then the System checks for overdraft limit **1368**. If there is overdraft limit, then the System displays message "Checking with overdraft line" with available data about it included on screen **1370**. But if no overdraft limit is returned, or if the product type is savings **1372**, then the System displays a message "Checking without overdraft line" with available data about it included on screen **1374**.

For all of the above product types and sub-products, after the System displays the message and information about the product type, the System can access additional account information through the transaction journal process as initially described in FIG. 30.

When the customer initially started the account inquiry or balance process, as described on FIG. 26, the System determined if the product class is a securities and/or mutual fund. When it is, the System begins process the inquiry by sending a message via the integrator to the host to send the customer's security portfolio **1376**. The customer waits for a response from the System **1378** for a successful account information transaction **1380** at which time the System determines if the product class is a securities or mutual fund **1382**. If the return is a mutual fund, then the System displays a message "Here is your mutual fund" with available data about it included on screen **1384**, and the System can access additional account information through the transaction journal process as described in FIG. 30. However, if the product class is a security **1386**, then the System determines if there are more than one security in the subaccount **1388**. If there is only one security in the subaccount **1390**, then the

System determines the security type as described on FIG. 29. If there are no securities in the subaccount, then a message is displayed **1392**, and the System exits to product select-transaction selection **1394**.

When there are more than one security in the subaccount **1388**, then the System displays the security details **1396**. If the customer selects a security **1398**, then the System determines the security type as described on FIG. 29. If the customer has not selected a security, then the System can inquire if there are other accounts in the category for inquiry **1400**. When there are other accounts in the category, then the category can be set **1402**, as described on FIG. 25, but when other accounts in the category do not exist, then the number of accounts in the profile is determined **1404**. If the number of profiles is equal to one, then the System exits to product select **1406**, or else the System returns to the beginning of the account information application as described on FIG. 24.

Additional descriptions of security information is found on FIG. 29. When a customer has selected a security, the balance may be printed **1408**, by queuing the record to the printer **1410**. The System determines what type of security the customer has selected. If the security type selected is a valued stock **1412**, then the System displays "Here is your valued stock" with available data about it included on screen **1414**. If the security type selected is a valued bond **1416**, then the System displays "Here is your valued bond" with available data about it included on screen **1418**. If the security type selected is an unvalued stock **1420**, then the System displays "Here is your unvalued stock" with available data about it included on screen **1422**. If the security type selected is an unvalued bond **1424**, then the System displays "Here is your unvalued bond" with available data about it included on screen **1426**. If the security type selected has no data **1428**, then the System displays "Here is your security-no data" **1430**. If the security type selected is a mutual fund **1432**, then the System displays "Here is your mutual fund" with available data about it included on screen **1434**.

For all of the security types, including mutual bonds, after the System displays the message and information about the product type, the System can access additional

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account information through the transaction journal process as initially described in FIG. 30.

Additional account information (FIG. 30) can be obtained at the home banking environment once the product type has been determined or if the product class is a security. If the transaction journal is supported 1436, then the System displays message that the recent activity is offered 1438. If the customer does not wish to continue with the current account information 1440, then the customer may retrieve account information 1442, or exit to product select 1444. If the transaction journal is not supported, then the System displays a message that no recent activity is offered 1448, and the customer is again given a choice to continue 1450 with account information retrieval or exit to product select 1452.

When the customer decides to continue with the account information, then the System determines if the product class is a security 1454. If the product class is a security, then the System determines if there are other product securities in the subaccount 1456, and if so, set the subaccount 1458 as described on FIG. 28. If there are not product securities in the subaccount, or if the product class is not a security, then the System determines if there are other accounts in the category 1460, and if so, set the category 1462 as described on FIG. 25. If there are no accounts in the category, and if the number of accounts in the profile is greater than one 1464, then the System exits to product select 1466. However, if the number of accounts in the profile is one, then the System displays the product details so that the customer may select an account as described on FIG. 25.

To start the transaction journal process, the System sends a message to the host to send the transaction journal 1468 as described on FIG. 31. When the response 1470 is returned and the action code is not zero 1471, then a standard error has occurred 1472 as described on FIG. 38. An action code of zero allows the customer to choose the activity 1473 which will display one of the following screens. The choices are as follows: activity with available data included on screen and no printing 1474; activity with available data included on screen and printing option 1476; most recent activity with available data included on screen and no printing 1478; most

recent activity with available data included on screen and printing option 1480; earlier or later activity with available data included on screen and no printing (FIG. 32) 1500; earliest activity with available data included on screen and no printing 1502; earlier or later activity with available data included on screen and printing option 1504; earliest activity with available data included on screen and printing option 1506; and no activity 1508. The no activity indicates a successful count for the transaction journal transaction 1510 and the System exits to product select-transaction selection 1512. All other activities are categorized as to if it is an earlier or later activity 1514, in which case, the customer may choose to see more transaction journals 1516 as described on FIG. 31. If the activity is not an earlier or later one, then the customer may choose to print the transaction journal (if an option) 1518 as described on FIG. 33. If the customer does not choose to print activity, then the System determines that the count is successful for the transaction journal transaction 1520. If the product class is a security 1522, and if there are other securities in the subaccount 1524, then the System sets the subaccount 1526 as described on FIG. 28. If the product class is not a security, or if the subaccount has no other securities, and if there are other accounts in this category 1528, the category is set 1534 as described on FIG. 25. However, if there are no other accounts in the category, and the number of accounts in the profile is equal to one 1530, then the System exits the application to product select 1532. If the number of accounts in the profile is not equal to one, then the System starts the account information process over as described on FIG. 24.

Printing a transaction journal is described in FIG. 33. When the customer selects print (when available), the System sends the document to the queue, and the System displays a message, "Just a moment, I'm printing" 1550. If the print is successful 1552, then the System returns to the transaction journal process described on FIG. 32. If the print was not successful, then the System displays message, "Print Failure" 1554. The customer may choose to view more transaction journal activity 1556 described on FIG. 32, or choose the successful count for the transaction journal transaction 1558 and exit to product select 1559.

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For the common routine re-enter personal identification number (FIG. 34), the System checks if this is the first transaction of the session **1560**. If it is, then the System returns to the original application. If it is not the first transaction, the System checks if re-entry is required for a transaction **1562**. If re-entry is not required, then the System returns to the original application. If re-entry is required, the System sets the try count to zero **1564**. The System displays a message prompting the Customer to input their personal identification number (PIN) **1566**. The System checks if the PIN entered is the same as a validated number **1568**. If it is, then the System returns to the original application. If it is not, then the System increments the try count by one **1570**. The System checks if the try count is equal to three **1572**. If the try count is greater than three, the System displays a message that the PIN is not recognized **1574** and queries if the Customer wants to try again **1576**. If they answer yes, the System sets the try count to zero **1564**. If the try count is equal to three, then the System displays a message that the PIN is not recognized **1578**. The System checks if the try count is equal to zero **1582**. If it is not, the System checks if end of session notification is required **1584**. If it is, the System sets the end of session notification code equal to session end with bad personal identification number **1586**. The System sends a message via the integrator to the host to set retry equal to infinity **1588**. If end of session notification is not required, the System sends a message via the integrator to the host to set retry equal to infinity **1588**. The re-enter PIN then terminates **1590**.

For the common routine check profile response (FIG. 35), the System checks if this is the first transaction of the session **1600**. If it is not, then the System returns to the previous figure **1602**. If it is, the System checks if a response has already been received **1604**. If it has not, the System displays a message "Waiting for Response" **1606**. If it has, the System checks if the response is equal to 51 **1608**. If it is, the System sets retry bad personal identification number (PIN) for profile **1610**. The System sends a message via the integrator to the host to send profile request **1612**. If the response is not equal to 51, the System checks if the response is equal to zero **1614**. If it is not, the System returns to FIG. 38. If the response is equal to zero, the System saves the validated profile data **1618**. The System checks if a marketing



message has been received in the profile 1620. If it has, then the System downloads a marketing message 1624. If it has not, then the System checks if the marketing message default table criteria has been met 1622. If it has, then the System downloads a marketing message 1624. If it has not, the System checks if track three data has been returned 1626. If it has not, the System returns to the original application. If it has, the System re-writes track three data 1628. The System returns to the original application 1632.

For the common routine check response (FIG. 36), for Subroutine 1, the System checks the response 1640. The System displays a message to wait a moment 1642. The System checks if the response is equal to zero 1644. If it is, the System returns to the previous Figure. If not, it issues a standard error 1648. The System goes to standard errors as described in FIG. 38.

For the common routine write track three (FIG. 36), for Subroutine 2, the System checks the response 1652. The System writes track three 1654. The System checks if write track three is OK 1656. If it is, the System returns to the previous Figure 1658. If not, the System sets write track three equal to one 1660. The System returns to the previous Figure.

For the common routine home processing (FIG. 36), for Subroutine 3, Home Processing 1663. The System activates the Product Select Application 1664 and select transaction 1666.

For the common routine bad personal identification number (PIN) (FIG. 37), the System displays the message "PIN Not Recognized" 1670. The System queries the Customer if they would like to try again 1672. If not, the System logs onto product select 1674. If yes, the System displays a message for the Customer to input their PIN 1676. The System checks if it is a valid length for the card prefix 1678. If not, the System displays the message "Personal Identification Number (PIN) Not Recognized" 1670. If it is valid, the System sends a message via the integrator to the host to re- send the message 1680. The System displays the message "Just a Moment. Please" 1682. The System returns to the previous Figure.

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For the common routine standard errors (FIG. 38), the System checks if the response action code is equal to 53 1700. If it is, the System checks if track three data has been returned 1702. If it has, the System goes to FIG. 36 Subroutine 2. If not, the System displays the message "Personal Identification Number Not Recognized" 1704.

5 The System checks if the response action code is equal to 20, 29, 30, or 96 1708. If it is, the System displays the message "Application Error" 1710. The System logs onto the specific options of the Product Select dependent on the standard error 1732. If not, the System checks if the response action code is equal to 04, 05, 97, or 171 1712. If it is, the System displays the message "Temporary Delays" 1714. The System logs onto the specific options of the Product Select dependent on the standard error 1732.

10 If not, the System checks if the response action code is equal to 93 1716. If it is, the System displays the message "Transaction Not Supported" 1718. The System logs onto the specific options of the Product Select dependent on the standard error 1732. If not, the System checks if the response action code is equal to 64 1720. If it is, the System displays the message "Can't Do" 1722. The System logs onto the specific options of the Product Select dependent on the standard error 1732. If not, the System checks if the response action code is equal to 95 1724. If it is, the System displays the message "Temporary Delays" 1726. The System logs onto the specific options of the Product Select dependent on the standard error 1732. If not, the System checks if the standard error response is other than 04, 05, 20, 29, 30, 32-38, 53, 64, 93, 95-97, or 171 1728. If it is, the System displays the message "Can't Do Now - Call" 1730. The System logs onto the specific options of the Product Select dependent on the standard error 1732.

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For the common routine account resolver (FIG. 39), the System makes a list of

25 all accounts of this type 1740. The System checks if there are two or more accounts 1742. If there are not, the System checks if there is one account 1744. If there is, the System returns to the previous Figure. If not, the System checks if there is exactly one product type 1748. If not, the System displays the message "No Accounts and More Than One Product" 1750. The System queries if the Customer would like to try

30 again 1752. If yes, the System queues to FIG. 40 before returning to FIG. 20. If not,

the System logs onto the specific options of product select 1760. If there is exactly one product type 1748, the System displays the message "No Accounts and One Product" 1758. The System logs onto the specific options of product select 1760.

5 If there are two or more accounts 1742, the System checks if balances are required 1762. If there are, the System sends a message via the integrator to the host to send balances 1764. If balances are not required, the System checks if there are any accounts remaining 1766. If there are, the System displays the message "Which of N" 1768. The System checks if the account selected is OK 1770. If it is, the System returns to FIG. 20. If not, the System checks if there are any accounts remaining 10 1766. If there are no accounts remaining 1766, the System displays the message "No More" 1774. The System queries if the Customer would like to try again 1776. If not, the System logs onto the specific options of product select 1760. If yes, the System resets the pointer to the top of the account list 1778. The System then checks if there are any accounts remaining 1766.

15 For the common routine account selection (FIG. 40), the System builds an account selection list 1800. The System checks if there is exactly one product type 1802. If there is, the System sets the product type equal to the one supported 1804. The System returns to the previous figure. If there is not exactly one product type, the System checks if there are three product groups 1808. If there are, the System displays the message "Product Types in Three Groups" 1810. The System checks if the Product Type is a submenu 1812. If it is, the System builds an account selection list 1800. If it is not, the System displays the message "Set Product Type" 1814. The System returns to the previous figure.

20 If there are not three product groups 1808, the System checks if there are two product groups with greater than six product types 1816. If there are not, then the System displays the message "Two to Six Product Types" 1818. The System checks if the Product Type is a submenu 1830. If it is, the System builds an account selection list 1800. If it is not, the System displays the message "Set Product Type" 1814. The System returns to the previous figure.

If there are two product groups with greater than six product types 1816, the System displays the message "Group Selection Overlay" 1820. The System deletes Product Types not in the selected group 1822. The System checks if the number of product types remaining is equal to one 1824. If it is, the System displays the message "Set Product Type" 1814. The System returns to the previous Figure. If it is not, the System re-displays the base screen from calling the application 1826. The System displays the message "Two to Six Product Types" 1818. The System checks if the Product Type is a submenu 1830. If it is, the System builds an account selection list 1800. If it is not, the System displays the message "Set Product Type" 1814. The System returns to the previous figure.

For the common routine determine amount (FIG. 41), the System checks the format for the currency amount 1840. The formats can be the amount keypad without decimal separator 1842; the amount keypad with period separator 1844; or the amount keypad with comma separator 1846. The Customer enters the amount 1848. The System checks if the amount is valid 1850. If it is, the System returns to the previous Figure. If it is not, the System checks if the amount entered is equal to zero or not understandable 1854; the amount entered is too large 1858; or, if the amount entered is below the minimum 1862.

If the amount entered is equal to zero or not understandable 1854, the System displays the message "Invalid Amount" 1856. If the amount entered is too large 1858, the System displays the message "Amount Too Large" 1860. If the amount entered is below the minimum 1862, the System displays the message "Amount Below Minimum" 1864.

The System queries the Customer if they would like to try again 1866. If yes, the System re-displays the appropriate base screen 1868 and the System checks the format for the currency amount 1840. If not, the System displays the message "No Retry" 1870. The System activates Product Select Transaction Selection 1872.

For the Product Select application (FIG. 42), the customer chooses the Product Select application from the Graphical User Interface screen and starts the customer session 1900 where the message is electronically delivered to the host 1902. When

the Product Select session begins, the System displays a Hello message **1904** and the Customer inputs their card number **1906**. The System identifies the Bank Identification Number (BIN) from the Card Prefix Table **1908**. If the BIN was identified as an international card, or if the BIN could not be positively identified, then the international application is entered **1910**. The System displays the appropriate language(s) **1912** according to the System configuration. The Customer inputs their personal identification number (PIN) **1914** and a profile message is sent for on-us cards **1916**. The System displays the transaction menu(s) based on customer parameters **1918** and a record is printed **1920**. If the Customer wishes to end the Product Select session **1922**, the System displays the appropriate Thank You screen **1924**, and the Product Select Application is ended **1926**.

For the Account Information Application (FIG. 43), the customer selects the account information button **1930** on the user friendly Graphical User Interface. The Customer inputs their card number **1932** and personal identification number (PIN) **1934**. The System checks the customer profile to determine if the Customer has more than one account **1946**. The Customer may view the transaction journal, if it is supported **1938** and may select recent activity to view **1940**. If the security subaccount is selected, and the customer has more than one security, then detail screens will be displayed **1942** and the Customer selects the security subaccount **1944**. If the System determines that the customer has more than one account **1946** the System sends a bank summary inquiry to the host via the integrator **1950**. If more than one category exists, then the System displays categories without totals unless authorized **1952**. The System sets the account list equal to number of categories **1954** and displays product details for customer to select an account **1956**. The System then sends a bank balance inquiry to the host via the integrator **1958**. If balances are returned **1960**, the System displays the appropriate balance information screen **1962**. If balances are not returned, an error message is displayed **1964**. Once completed the Account Information Application is terminated **1966**.

For the Account Transfer Application (FIG. 44), the System displays the account selection menu **1970** on the Customer's Graphical User Interface. The

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Customer selects the destination account **1972** and the System displays the appropriate keypad for the Customer to enter the transfer amount **1974**. The System then displays another account selection menu to determine the source account **1976**. If the Customer does not wish to proceed with the transfer, the System reverses the transaction on the host **1980** and the screen displays that no transfer has been conducted **1982** and exits the session. The System determines if the accounts are of the same currency **1978** and, if not, a screen displays the exchange rate, equivalent amounts, and commission fee from the host **1984**. If the accounts are of the same currency and the customer wishes to make a transfer **1993**, then the System displays a screen verifying the source and destination accounts and the transfer amount **1994**. If the customer does not wish the make a transfer, then the screen displays a message that no transfer has been conducted **1982**. The System then queries if the customer still wishes to make a transfer **1993**. If not, a screen displays that no transfer has been conducted **1988** and the System exits the session. If the Customer still wishes to make a transfer, the System transfers the currency including foreign exchange rate and fee (if any) **1990** and the System displays a screen with the new balances for both source and destination accounts **1992**. Once the transfer is complete, the Account Transfer Application terminates **1996**.

For the Customer Service Application (FIG. 45 and FIG. 46) the Customer selects the Customer service button from the user friendly Graphical User Interface and the System accesses Customer Service processing (FIG. 45) **2000**. The Customer is presented with five options - Re-order Checks session **2002**; Change personal identification number (PIN) session **2024**; Update Request session **2050**; Give notice session **2068**; and the Print balance summary session **2086**.

For the first option, Re-order Checks session **2002**, the Customer enters their card number and personal identification number (PIN) **2004**. The System displays the account selection screen based on the bank identification number (BIN) **2006**. Once the Customer has re-ordered checks **2007**, the System displays a screen re-capping the customer's instructions **2008** or displays a screen that the request has been canceled if requested by customer **2010**. If the request was not canceled, the System then sends a

request message to the host **2012**. If the log was unsuccessful by host, then the System displays an error message **2014**. If the log was successful by host, then the System displays a confirmation message **2016**. The Check Re-order application is then terminated **2018**.

5 For the second option, Change Personal Identification Number (PIN) session, the Customer chooses the change PIN button **2024** from the Graphical User Interface. The Customer is then presented with two choices, either a screen to enter the current PIN to compare with a previous PIN **2026**; or, a display screen to enter new PIN **2028**. If a comparison **2026** is chosen, a graphical display screen is presented to enter the  
10 current PIN to compare with previous PIN **2030**. If enter new PIN **2028** is selected, a graphical display screen is presented to re-enter the new PIN **2032**.

If the PINs do not match, then a graphical display error screen is presented allowing the customer to retry **2034**. If incorrect PINs are entered five consecutive times, the System displays an error message **2036**. When the PIN is verified, the System sends a message to the host via the integrator **2038** and displays a screen advising the Customer of their new PIN number **2040**.

For the third option, Update Request session (FIG. 46) **2050**, the Customer chooses the Update Request session **2050** button from the user friendly Graphical User Interface. The System then determines if the Customer has more than one account **2052**. If there is more than one account, the System displays an account selection screen to select an account **2054**. If there is only one account, the System bypasses the account selection **2056**. The System then sends an update request message to the host via the integrator **2058** and prints a statement **2060**. If the statement is not received by the Customer **2062**, the System then sends another update  
25 request message to the host via the integrator **2058**. If the statement is received by the customer **2064**, the System sends and displays a confirmation message **2066**.

For the fourth option, Give Notice session **2068**, the Customer chooses the Give Notice session button **2068** from the user friendly Graphical User Interface. The System gets the Customer Profile **2070** and disclose Give Notice process **2072**. The  
30 System displays the date of notice **2074**. The System determines common amount

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2076. The System confirms the amount 2078. The System sends notice to the host via the integrator 2080. The System confirms notice has been scheduled 2082. The Give Notice session then terminates 2084.

5 For the Fifth option, Print Balance Summary session 2086, the Customer chooses the Print Balance Summary button 2086 from the user friendly Graphical User Interface. If the System determines that this is the first transaction, then the System waits for the profile 2088. If it is not the first transaction, then the Customer is prompted to re-enter their PIN 2090. The summary message request flag is set to true 2092. The System sends a summary inquiry to the host via the integrator 2094. The summary message flag is set to false 2096. The System prints the balance summary 2098. The Print Balance Summary session terminates 2084.

10 The Payment Processing Application (FIG. 47) is initiated when the Customer chooses the Payment Processing button 2100 from the user friendly Graphical User Interface. Two options are then presented, Payment Creation 2102, and Payment Change / Cancel / Inquiry 2128.

15 For the first option, Payment Creation, the System checks and waits for the profile message return to begin payment creation 2102. The System checks if available accounts are valid for making external transfers or standing orders 2104. The System checks the status of the host 2106. The System displays the appropriate screens 2108, either the payee list screen, the keyboard screen, the destination account screen, or the bank route number screen. The System displays a numeric keypad screen to enter the transaction amount 2110. The System displays the source account selection screen 2112. The Systems displays two screens for entering payment date 25 2116, either the calendar screen for external transfers or the numeric keypad for standing orders. The System displays screens for entering a message and communication to attach to an authorization message 2118. The System displays a recap screen to modify information 2120. The System sends an authorization message 2122. If a time-out occurs, the System sends a reversal message 2124. The 30 Payment Processing application then terminates 2126.



For the second option, Payment Change / Cancel / Inquiry, the System checks and waits for the profile message return to begin the payment change / cancel / inquiry process **2128**. The System sends a list of pending payment messages **2130**. If there is an error, then the System displays an error screen **2132**. If there is no error, the System displays the appropriate screens **2134**, either the no transfers screens if there is no pending payment, or the detailed screen for one pending payment, with the ability to use the paging mechanism if there is more than one payment, then go to the detailed screen. If the Customer selects a pending payment, then no further processing is necessary **2136**. If the Customer cancels a payment, then the System sends an authorization message **2138**. If the Customer changes a payment, then their System displays a screen to enter the change, then sends an authorization message **2140**. If a time-out occurs, the System sends a reversal message **2142**. The Payment Processing application then terminates **2126**.